

# BRCS200P03ZB

Rev.A May.-2020

## 描述 / Descriptions

DFN 3×3A-8L 塑封封装 P 沟道 MOS 场效应管。

P-Channel Enhancement Mode Field Effect Transistor in a DFN 3×3A-8L Plastic Package.

## 特征 / Features

$V_{DS} (V) = -30V$

$I_D = -19 A (V_{GS} = -20V)$

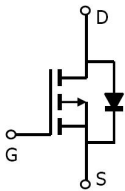
无卤产品。HF Product.

## 用途 / Applications

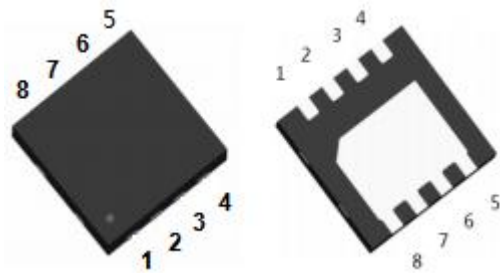
用于电源管理，便携式设备和电池供电系统。

Power Management in Notebook computer, Portable Equipment and Battery powered systems.

## 内部等效电路 / Equivalent Circuit



## 引脚排列 / Pinning



出脚	定义
Pin1	S
Pin2	S
Pin3	S
Pin4	G
Pin5	D
Pin6	D
Pin7	D
Pin8	D

## 印章代码 / Marking

见印章说明 See Marking Instructions.

**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage	$V_{DSS}$	-30	V
Gate-Source Voltage	$V_{GSS}$	$\pm 20$	V
Continuous Drain Current	$I_D (T_a=25^\circ\text{C})$	-19	A
Continuous Drain Current	$I_D (T_a=70^\circ\text{C})$	-14	A
Pulsed Drain Current	$I_{DM}$	-56	A
Avalanche energy L=0.5mH	$E_{AS}$	170	mJ
Power Dissipation for Single Operation	$P_D (T_a=25^\circ\text{C})$	13	W
Power Dissipation for Single Operation	$P_D (T_a=100^\circ\text{C})$	5.2	W
Maximum Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 ~ 150	$^\circ\text{C}$
Thermal Resistance-Junction to Ambient	$R_{\theta JA} (t \leq 10s)$	35	$^\circ\text{C/W}$
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	67	$^\circ\text{C/W}$
Maximum Junction-to-Case	$R_{\theta JC}$	9.6	$^\circ\text{C/W}$

## 电性能参数 / Electrical Characteristics(Ta=25°C)

参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Drain-Source Breakdown Voltage	$BV_{DSS}$	$I_D=-250\mu A$ $V_{GS}=0V$	-30			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-30V$ $V_{GS}=0V$			-1.0	$\mu A$
		$V_{DS}=-30V$ $V_{GS}=0V$ $T_J=55^\circ C$			-5.0	
Gate-Body leakage current	$I_{GSS}$	$V_{DS}=0V$ $V_{GS}=\pm 20V$			$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250\mu A$	-1.0	-1.7	-3.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-10V$ $I_D=-10A$		17.8	20	m $\Omega$
		$V_{GS}=-4.5V$ $I_D=-10A$		28.5	30	
Forward Transconductance	$g_{FS}$	$V_{DS}=-5V$ $I_D=-8.8A$		11		S
Diode Forward Voltage	$V_{SD}$	$I_S=-1A$ $V_{GS}=0V$		-0.72	-1.0	V
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=-10V$ $V_{DS}=-15V$ $I_D=-10A$		19	30	nC
Total Gate Charge	$Q_{g(4.5V)}$			9.6	20	
Gate-Source Charge	$Q_{gs}$			3.5		
Gate-Drain Charge	$Q_{gd}$			4.5		
Gate Resistance	$R_g$	$V_{GS}=0V$ $f=1MHz$	$V_{DS}=0V$		8.8	$\Omega$
Input Capacitance	$C_{iss}$	$V_{GS}=0V$ $f=1MHz$	$V_{DS}=-25V$		1770	pF
Output Capacitance	$C_{oss}$				550	
Reverse Transfer Capacitance	$C_{rss}$				290	
Turn-on Delay Time	$t_{d(ON)}$	$V_{GS}=-10V$ $R_L=1.5\Omega$	$V_{DS}=-15V$ $R_{GEN}=3\Omega$		10	ns
Turn-on Rise Time	$t_r$				5.5	
Turn-off Delay Time	$t_{d(OFF)}$				26	
Turn-off Fall Time	$t_f$				9	

电参数曲线图 / Electrical Characteristic Curve

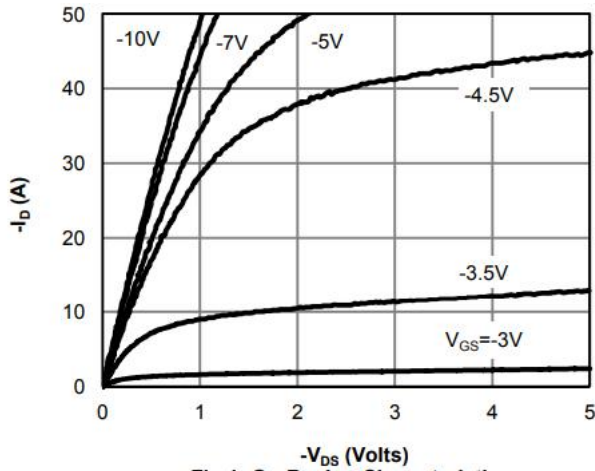


Fig 1: On-Region Characteristics

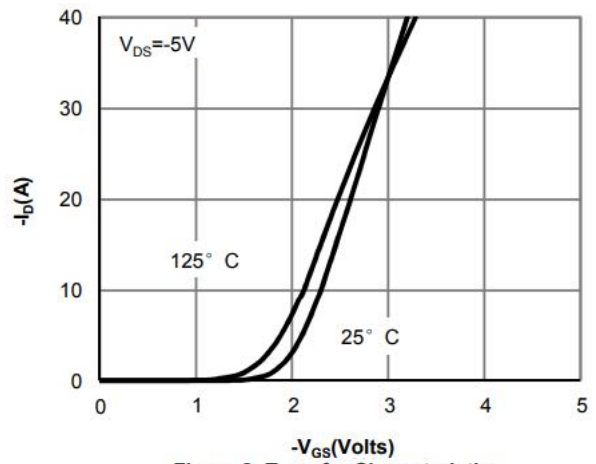


Figure 2: Transfer Characteristics

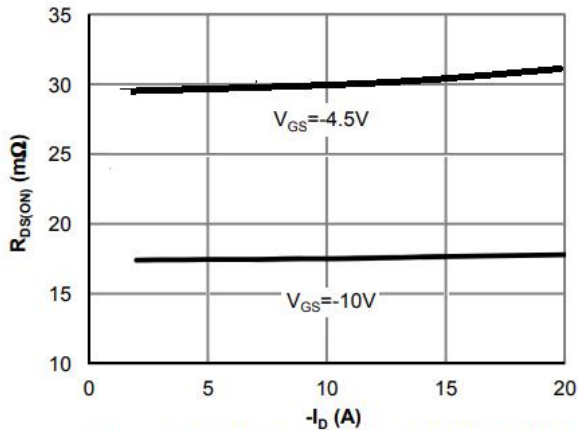


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

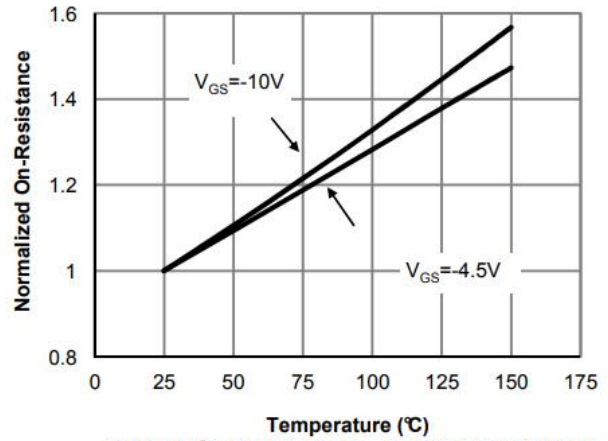


Figure 4: On-Resistance vs. Junction Temperature

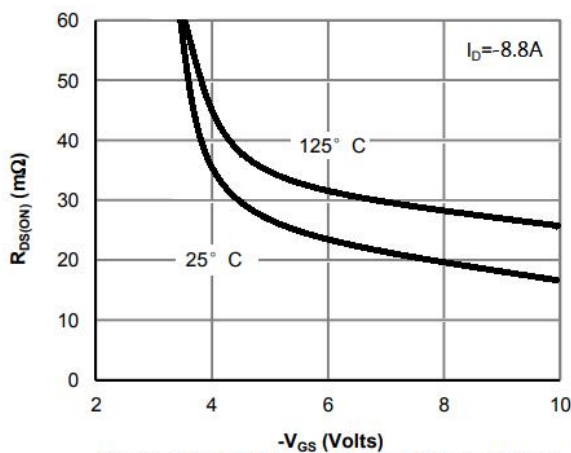


Figure 5: On-Resistance vs. Gate-Source Voltage

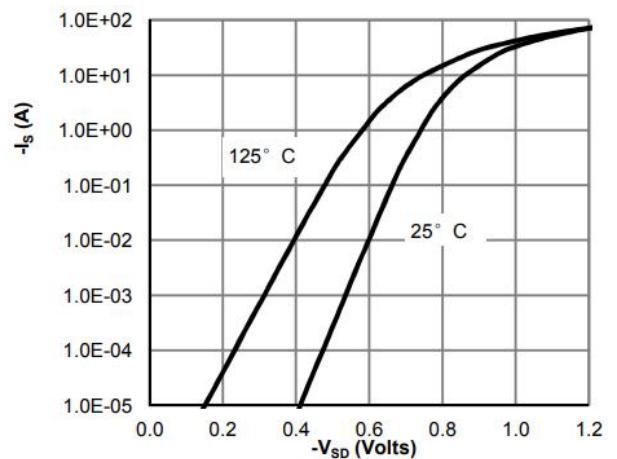


Figure 6: Body-Diode Characteristics

电参数曲线图 / Electrical Characteristic Curve

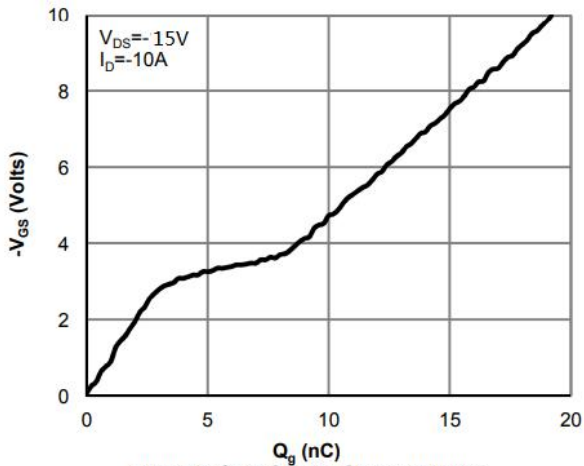


Figure 7: Gate-Charge Characteristics

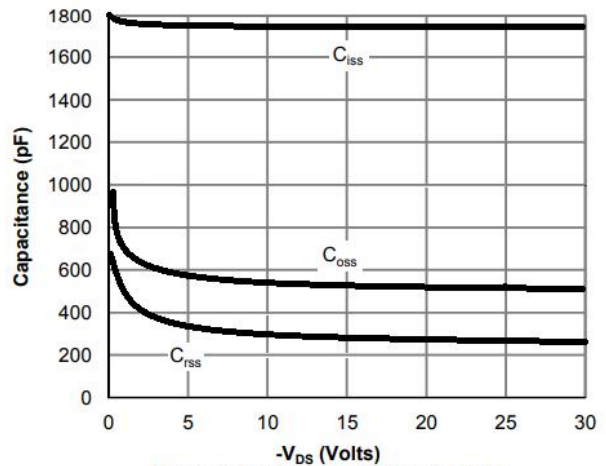


Figure 8: Capacitance Characteristics

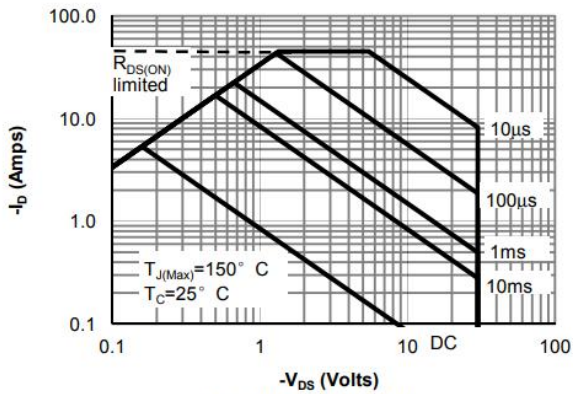


Figure 9: Maximum Forward Biased Safe Operating Area  
 $V_{GS} > \text{or equal to } 4.5V$

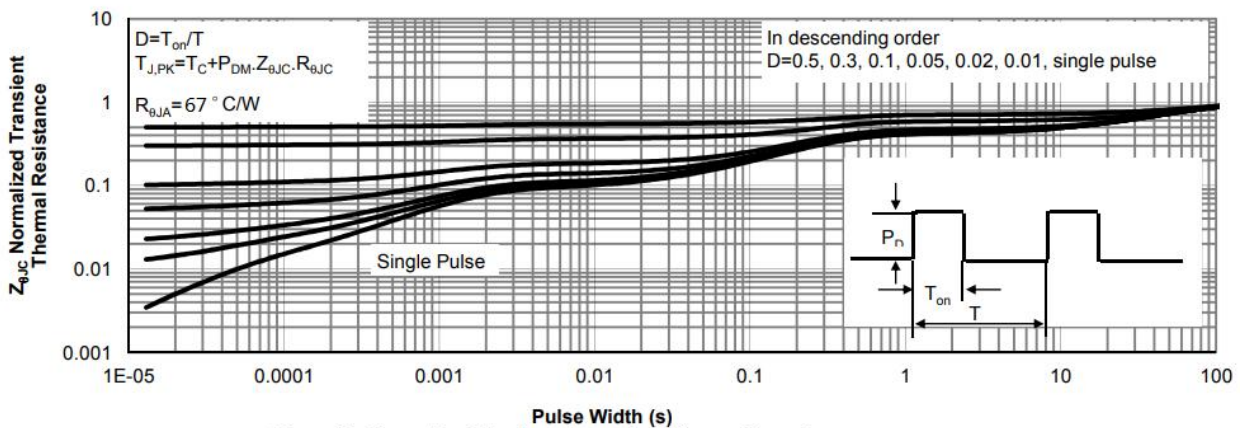
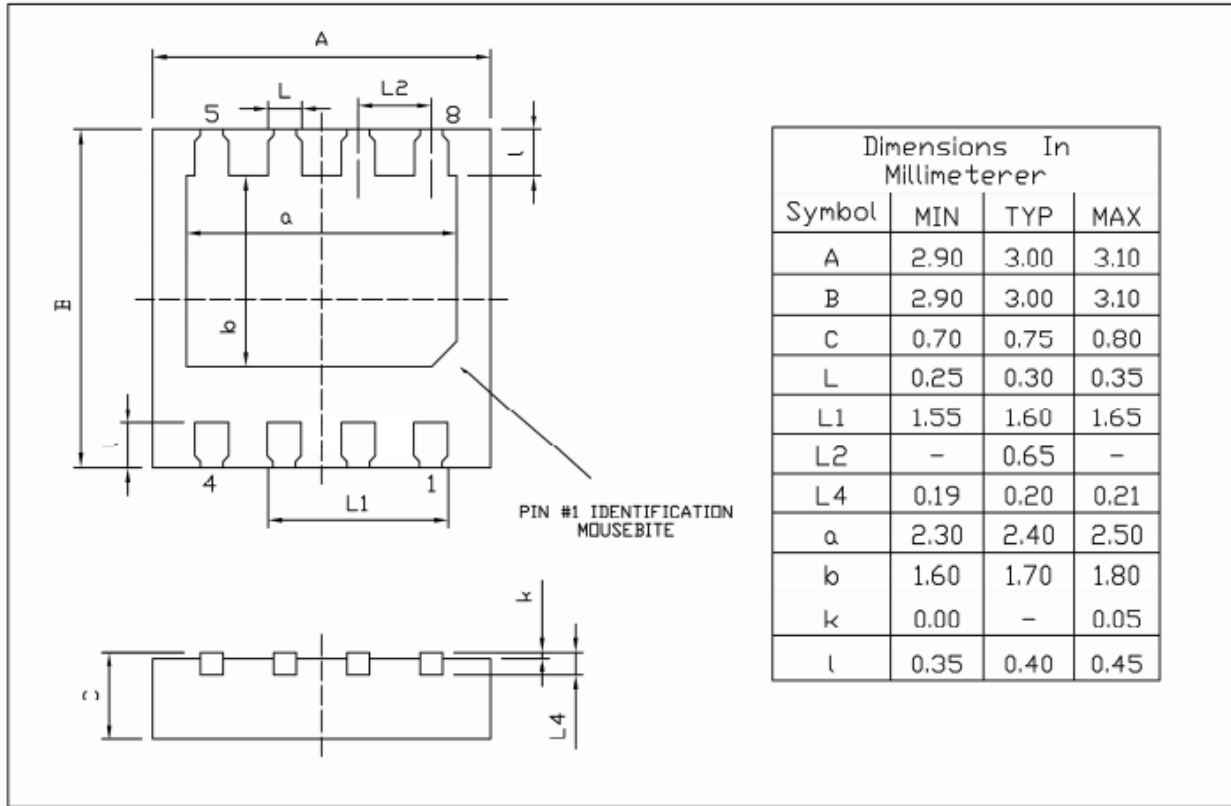


Figure 10: Normalized Maximum Transient Thermal Impedance

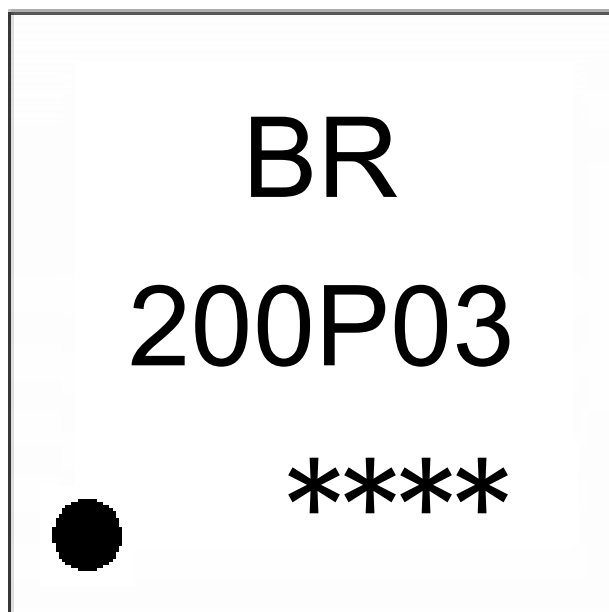
**外形尺寸图 / Package Dimensions**

DFN3X3A-8L

Unit:mm



印章说明 / Marking Instructions



说明：

BR： 为公司代码

200P03： 为型号代码

\*\*\*\*： 为生产批号代码，随生产批号变化

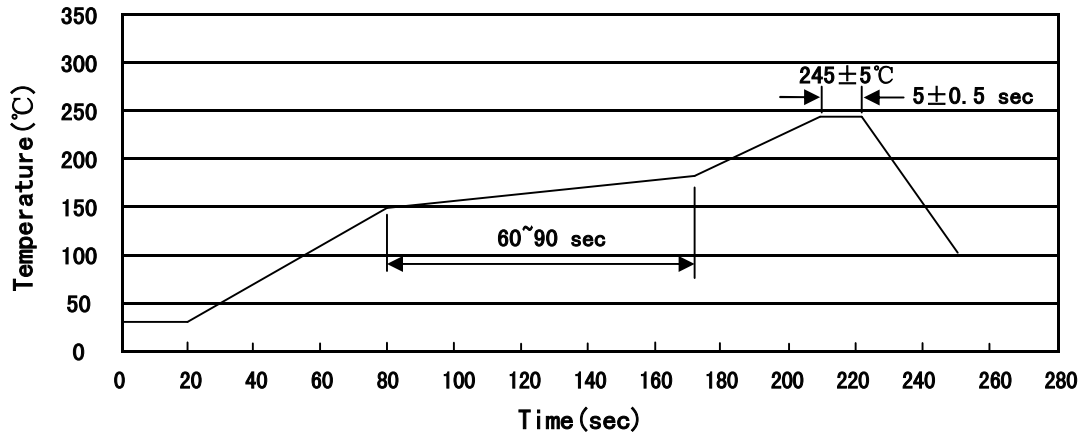
Note:

BR: Company Code.

200P03: Product Type

\*\*\*\*: Lot No. Code, code change with Lot No

**回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)**



说明：

- 1、预热温度 150 ~ 180°C，时间 60 ~ 90sec;
- 2、峰值温度 245±5°C，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2 ~ 10°C/sec.

Note:

- 1.Preheating:150~180°C, Time:60~90sec.
- 2.Peak Temp.:245±5°C, Duration:5±0.5sec.
3. Cooling Speed: 2~10°C/sec.

**耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions**

温度：260±5°C

时间：10±1 sec.

Temp.:260±5°C

Time:10±1 sec

**包装规格 / Packaging SPEC.**

卷盘包装 / REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm <sup>3</sup> )		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
DFN 3 × 3A-8L	5,000	2	10,000	6	60,000	13" × 12	360×360×50	380×335×366

**使用说明 / Notices**